CLAIMS

What is claimed is:

1. A system for synchronizing a portable transceiver to a network, comprising:

a crystal oscillator;

a frequency synthesizer adapted to receive an output of the crystal oscillator;

logic coupled to the crystal oscillator, the logic configured to estimate a frequency error of a received signal; and

a first control signal supplied from the logic to the frequency synthesizer, the first control signal configured to adjust the frequency synthesizer to compensate for the error.

2. The system of claim 1,further comprising:

tuning circuitry coupled to the crystal oscillator, the tuning circuitry having a limited adjustment capability; and

a second control signal supplied from the logic to the tuning circuitry, the second control signal configured to adjust the tuning circuitry, the tuning circuitry configured to compensate for the error.

3. The system of claim 2, wherein the adjustment of the frequency synthesizer adjusts the timing of the portable transceiver with respect to a communication network.

4. The system of claim 3, wherein the timing adjustment comprises adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep calibration element.

5. The system of claim 3, wherein the tuning circuitry comprises a digital-to-analog converter.

6. The system of claim 3, wherein the tuning circuitry comprises a capacitance array.

7. The system of claim 6, wherein the capacitance array comprises fixed capacitance.

8. The system of claim 6, wherein the capacitance array comprises variable capacitance.

9. The system of claim 8, wherein the adjustment capability of the capacitance array can tune the system to between ±2 parts per million (ppm) and ±2.5ppm with respect to the frequency and timing of the communication network.

10. A method for synchronizing a portable transceiver to a network, comprising:

determining a frequency error of a signal received by the portable transceiver; and

if the frequency error is less than a predetermined value, adjusting the frequency of the system by adjusting a frequency synthesizer to compensate for the error.

11. The method of claim 10, further comprising:

adjusting the frequency of the crystal oscillator by adjusting a tuning circuit associated with the crystal oscillator.

12. The method of claim 11, wherein the adjustment of the frequency synthesizer adjusts the timing of the portable transceiver with respect to a communication network.

13. The method of claim 12, wherein the timing adjustment comprises adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep calibration element.

14. The method of claim 12, further comprising using a digital-to-analog converter (DAC) to adjust the frequency of the crystal oscillator.

15. The method of claim 12, further comprising using a capacitance array to adjust the frequency of the crystal oscillator.

16. The method of claim 15, further comprising using a fixed capacitance array.

17. The method of claim 15, further comprising using a variable capacitance array.

18. The method of claim 17, wherein the adjustment capability of the variable capacitance array tunes the system frequency to between ±2 parts per million (ppm) and ±2.5ppm of the frequency of the communication network.

19. A system for synchronizing a portable transceiver to a network, comprising:

means for determining a frequency error of a signal received by the portable transceiver; and

means for adjusting the frequency of the system by adjusting a frequency synthesizer to compensate for the error if the frequency error is less than a predetermined value.

20. The system of claim 19, further comprising:

means for adjusting the frequency of the crystal oscillator by adjusting a tuning circuit associated with the crystal oscillator.

21. The system of claim 20, wherein the adjustment of the frequency synthesizer adjusts the timing of the portable transceiver with respect to a communication network.

22. The system of claim 21, wherein the timing adjustment comprises adjusting the timing of a transmitter, a receiver, a coder/decoder (CODEC) and a sleep calibration element.

23. The system of claim 21, wherein the means for adjusting the frequency of the crystal oscillator comprises a digital-to-analog converter (DAC).

24. The system of claim 21, wherein the means for adjusting the frequency of the crystal oscillator comprises a capacitance array.

25. The system of claim 24, wherein the capacitance array comprises a fixed capacitance array.

26. The system of claim 24, wherein the capacitance array comprises a variable capacitance array.

27. The system of claim 26, wherein the adjustment capability of the capacitance array tunes the system frequency to between ±2 parts per million (ppm) and ±2.5ppm of the frequency of the communication network.